

IN THE CLAIMS

Claim 10 (original): A method for producing a unitary storage medium, comprising the steps of:
providing at least two mutually logically conforming sub-TOCs for the same track area in one or more track areas of a unitary storage medium, each sub-TOC having structures for storing information for determining the configuration of the same information items stored in the track area, thereby allowing retrieving the configuration of the same information item in the track area from at least any correct copy of the sub-TOCs; and
providing at least one master-TOC having structures for storing information for determining the position of the sub-TOCs.

Claim 11 (original): The method of Claim 10, further comprising the step of:
storing the information items in the track area;
storing in each of the sub-TOC structures the configuration of each of the information items including the content and position of the information items in the track area;
storing in the master-TOC structures the information for determining the position of the at least two mutually logically conforming sub-TOCs.

Claim 12 (original): The method of Claim 10, wherein the information items include audio information.

Claim 13 (original): The method of Claim 10, wherein the unitary storage medium is an optical disc.

Claim 14 (original): The method of Claim 10, wherein the information is stored by pressing consumer discs from a master disc.

Claim 15 (original): The method of Claim 10, wherein the information is stored using an optical write head.

Claim 16 (original): The method of Claim 10, wherein two sub-TOCs assigned to the track area

are positioned at opposite ends of the track area.

Claim 17 (original): The method of Claim 10, wherein the number of sub-TOCs assigned to the track area is exactly 2.

Claim 18 (original): The method of Claim 10, wherein the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium.

Claim 19 (original): The method of Claim 10, wherein the mutually logically conforming sub-TOCs are identical.

Claim 20 (original): The method of Claim 10, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 21 (original): The method of Claim 10, wherein:

- the method further comprises the step of: storing the information items in the track area:
- storing in both the sub-TOCs structures the information for determining the content and position of each information item in the track area; storing in the master-TOC structures the information for determining the position of the at least two mutually logically conforming sub-TOCs;

- the information items include audio information;

- the storage medium is an optical disc;

- the information is recorded using a method selected from one or more of: pressing consumer discs from a master disc; using an optical write head;

- two sub-TOCs assigned to a track area are positioned at opposite ends of the track area;

- a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;

- the number of sub-TOCs assigned to a track area is exactly 2;

- the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;

the mutually logically conforming sub-TOCs contain information selected from: identical information; and equivalent bitwise inverted information;

the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;

the file system for audio conforms to a standard selected from: UDF, and ISO 9660;

the file structure includes a root directory that points to the master-TOC and to sub-directories;

the sub-directories include a sub-directory containing stereo audio information items and another sub-directory containing audio information items having three or more channels; and

the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 22 (original): A unitary storage medium, comprising:

one or more track areas;

at least two mutually logically conforming sub-TOCs assigned to a track area, each sub-TOC having information structures for storing information specifying the configuration of the same information items stored in the track area, thereby allowing retrieving the configuration information for the same information item in the track area from at least any correct copy of the sub-TOCs; and

at least one master-TOC with information structures for storing information for determining the positions of each of the mutually logically conforming sub-TOCs.

Claim 23 (previously presented): The medium of Claim 22, wherein the medium is an optically readable disc.

Claim 24 (previously presented): The medium of Claim 22 wherein:

information items are stored in the track areas; the information for determining the configuration of each information item in the track area is stored in each sub-TOC; and the information for determining the position of the at least two mutually logically conforming sub-TOCs is stored in the master-TOC;

the information items include audio information;

the information is recorded using a method selected from one or more of: pressing consumer discs from a master disc; using an optical write head;

two sub-TOCs assigned to a track area are positioned at opposite ends of the track area;

a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;

the number of sub-TOCs assigned to a track area is exactly 2;

the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;

the mutually logically conforming sub-TOCs contain information selected from: identical information; and equivalent bitwise inverted information;

the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;

the file system for audio information conforms to a standard selected from: UDF; and ISO 9660;

the file structure includes a root directory that points to the master-TOC and to sub-directories;

the sub-directories include a sub-directory containing stereo audio information and a sub-directory containing audio information having three or more channels; and

the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 25 (original): Apparatus for controlling a reading device, comprising:

first control means for positioning a read head at information items stored in a track area of one or more track areas of a unitary storage medium, depending on configuration information read at times from each of at least two mutually logically conforming sub-TOCs assigned to the track area, each of the sub-TOCs specifying the configuration of the same information items stored in the track area, thereby allowing retrieving the configuration information for the same information items from at least any correct copy of the at least two sub-TOCs; and

second control means for positioning the read head at times at each of the at least two sub-TOCs depending on position information read from at least one master-TOC.

Claim 26 (original): The reading control apparatus of Claim 25 in which:

- the storage medium is an optically readable disc;
- the information items include audio information;
- the information is recorded using a method selected from one or more of: pressing consumer discs from a master disc; using an optical write head;
- two sub-TOCs assigned to a track area are positioned at opposite ends of the track area;
- a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;
- the number of sub-TOCs assigned to a track area is exactly 2;
- the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;
- the mutually logically conforming sub-TOCs contain information selected from: identical information; and equivalent bitwise inverted information;
- the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;
- the file system for audio information conforms to a standard selected from: UDF; and ISO 9660;
- the file structure includes a root directory that points to the master-TOC and to sub-directories;
- the sub-directories include a sub-directory containing stereo audio information items and a sub-directory containing audio information items having three or more channels; and
- the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 27 (original): Apparatus for controlling a recording device with a write head, comprising:

- first control means for positioning a write head to write information items in a track area of one or more track areas of a unitary storage medium, and writing the information items in the track area; and
- second control means for positioning the write head to write configuration information for the information items at times in each of at least two mutually logically conforming sub-TOCs assigned to the track area, and writing in each sub-TOC the configuration information for

the same information items written in the track area, thereby allowing retrieving configuration information for the same information item from at least any correct copy of the mutually logically conforming sub-TOCs.

Claim 28 (original): The recording device control apparatus of Claim 27 in which:

- the controller further comprising third control means for positioning the read head at a master-TOC, and writing information in information structures of the master-TOC for determining the position of each sub-TOC for the write area;

- the storage medium is an optically readable disc;

- the information items include audio information;

- two sub-TOCs assigned to a track area are positioned at opposite ends of the track area;

- a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;

- the number of sub-TOCs assigned to a track area is exactly 2;

- the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;

- the mutually logically conforming sub-TOCs contain information selected from: identical information; and equivalent bitwise inverted information;

- the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;

- the file system for audio information conforms to a standard selected from: UDF; and ISO 9660;

- the file structure includes a root directory that points to the master-TOC and to sub-directories;

- the sub-directories include a sub-directory containing stereo audio information items and a sub-directory containing audio information items having three or more channels; and

- the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 29 (original): A reading device for a unitary media, comprising:

- a read head for reading information from one or more track areas of a track of an optical

disc;

a disc driver for driving the track with respect to the read head;

a clamping device for holding the disc in relation to the disc driver;

control means for controlling the reading device

the control means positioning a read head with respect to the track depending on configuration information including position information read at times from each of at least two mutually logically conforming sub-TOCs assigned to each track area, each sub-TOC specifying the configuration of each information item stored in the track area, thereby allowing retrieving configuration information for any information items from at least any correct copy of the mutually logically conforming sub-TOCs; and

the control means positioning the read head at each of the at least two sub-TOCs depending on position information read from at least one master-TOC.

Claim 30 (original): The reading device of Claim 29 in which:

the storage medium is an optically readable disc;

the information items include audio information;

the information is recorded using a method selected from one or more of: pressing consumer discs from a master disc; using an optical write head;

two sub-TOCs assigned to a track area are positioned at opposite ends of the track area; a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;

the number of sub-TOCs assigned to a track area is exactly 2;

the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;

the mutually logically conforming sub-TOCs contain information selected from: identical information; and equivalent bitwise inverted information;

the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;

the file system for audio information conforms to a standard selected from: UDF; and ISO 9660;

the file structure includes a root directory that points to the master-TOC and to sub-directories;

the sub-directories include a sub-directory containing stereo audio information items and a sub-directory containing audio information items having three or more channels; and

the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 31 (original): A recording device for a unitary storage medium, comprising:

a master disc;

means for pressing consumer discs from the master disc to record the consumer discs;

and in which the master disc includes:

one or more track areas;

at least two mutually logically conforming sub-TOCs assigned to a track area, each sub-TOC having information structures specifying the configuration of each information item stored in the track area, thereby allowing retrieving the configuration of any information item at least from any correct copy of the sub-TOCs; and

at least one master-TOC with information structures specifying the positions of each of the mutually logically conforming sub-TOCs.

Claim 32 (original): The recording device of Claim 31 in which:

the storage medium is an optically readable disc;

the information items include audio information;

the information items are recorded using an optical write head in the process for producing the master disc;

two sub-TOCs assigned to a track area are positioned at opposite ends of the track area;

a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;

the number of sub-TOCs assigned to a track area is exactly 2;

the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;

the mutually logically conforming sub-TOCs contain information selected from:

identical information; and equivalent bitwise inverted information;

the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;

the file system for audio information conforms to a standard selected from: UDF; and ISO 9660;

the file structure includes a root directory that points to the master-TOC and to sub-directories:

the sub-directories include a sub-directory containing stereo audio information items and a sub-directory containing audio information items having three or more channels; and

the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 33 (original): A recording device with a write head for a unitary storage medium, comprising:

a write head for recording information on one or more track areas of a track of an optical disc;

disc driver for driving the track with respect to the write head;

a clamping device for holding the disc fixed in relation to the disc drive means;

control means for controlling the recording device;

the control means positioning the write head at times to write the information items in a track area and for subsequently writing the information items in the track area;

the control means positioning the write head at times to write, in at least two mutually logically conforming sub-TOCs assigned to each track area, configuration information of the information items, each sub-TOC having structures for storing configuration information for each of the information items stored in the track area, and for subsequently writing the information item configuration information into the sub-TOC structures, thereby allowing retrieving configuration information for any information items from at least any correct copy of the mutually logically conforming sub-TOCs.

Claim 34 (original): The recording device of Claim 33 in which:

the control means position the write head to write, in at least one master-TOC,

information for determining the positions of the sub-TOCs, the master-TOC having structures for storing the information for determining the positions of each sub-TOC, and for writing the sub-TOC position determining information into the master-TOC structures;

the control means position the write head to write at least two mutually logically conforming sub-TOCs for the same track area of the unitary storage medium, each sub-TOC having structures for storing information for determining the configuration of each information items stored in the track area, thereby allowing retrieving the configuration of any information item in the track area from at least any correct copy of the sub-TOCs;

the control means position the write head to write at least one master-TOC having structures for storing information for determining the position of the sub-TOCs;

the write head is a read/write head used for reading information from the medium and writing information to the medium.

the control means position the write head to read the information items stored in the track area depending on configuration information read at items from each of the mutually logically conforming sub-TOCs assigned to the track area, each of the sub-TOCs specifying the configuration of the same information items stored in the track area, thereby allowing retrieving the configuration information for the same information items from at least any correct copy of the at least two sub-TOCs; the control means control the reading of each information item by the write head positioned at the information item in the track area;

the control means position the write head at times to read the information item configuration information at times from each of the sub-TOCs depending on position information read from the master-TOC; the control means control the reading of the configuration information by the write head positioned at each sub-TOC;

the control means position the write head at times to read the position information of the sub-TOCs from the master-TOC and control the reading of the position information from the master-TOC;

the storage medium is an optically readable disc;

the information items include audio information;

two sub-TOCs assigned to a track area are positioned at opposite ends of the track area;

a sub-TOC assigned to a track area positioned at one end of the track area is separated from the one end of the track area by a gap;

the number of sub-TOCs assigned to a track area is exactly 2;

the master-TOC is positioned at a predetermined offset location with respect to an initial location on the medium;

the mutually logically conforming sub-TOCs contain information selected from: identical information; and equivalent bitwise inverted information;

the storage medium also includes a file structure, and the information items may be accessed using either the TOC structure or the file structure;

the file system for audio information conforms to a standard selected from: UDF; and ISO 9660;

the file structure includes a root directory that points to the master-TOC and to sub-directories;

the sub-directories include a sub-directory containing stereo audio information items and a sub-directory containing audio information items having three or more channels; and

the storage of the audio information is selected from one or more of: a lossless compression format; and a lossy compression format.

Claim 35 (original): An optical disc for storing audio-centered information on a unitary storage medium using a Table-of Contents (TOC) mechanism for therein specifying an actual configuration of various audio items on the medium, produced by the method of:

assigning at least two mutually logically conforming Sub-TOCs to each one of a set of one or more Track Areas on the unitary storage medium, thereby allowing retrieving any constituent Sub-TOC part from at least any correct copy of the Sub-TOCs; and providing at least one master-TOC for specifically pointing to each of the Sub-TOCs.

Claim 36 (previously presented): The medium of Claim 22, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 37 (previously presented): The apparatus of Claim 25, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 38 (previously presented): The apparatus of Claim 27, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 39 (previously presented): The reading device of Claim 29, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 40 (previously presented): The reading device of Claim 31, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 41 (previously presented): The recording device of Claim 33, wherein the information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of the information in another of the at least two mutually logically conforming sub-TOCs.

Claim 42 (previously presented): The optical disc of Claim 35, wherein information in one of the at least two mutually logically conforming sub-TOCs is a bitwise inversion of information in another of the at least two mutually logically conforming sub-TOCs.